The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

January 22, 2008

The Honorable Judith T. Spang, Chairman
Resources, Recreation and Development Committee
Legislative Office Building, Room 305
Concord, New Hampshire 03301

Subject: HB 1154 establishing a commission to study flooding in the town of Bradford, specifically Lake Massasecum, Lake Todd and the watershed.

Dear Chairman Spang:

Thank you for the opportunity to testify on HB 1154, which would establish a commission to study flooding in the town of Bradford, specifically Lake Massasecum, Lake Todd, and the Warner River watershed. As the bill is currently written, the proposed commission will study the factors that contribute to the repeated flooding in the town of Bradford including road and building construction, silt deposits and dam operations. The Department of Environmental Services (DES) is designated to be a member of the commission. If the bill is enacted, DES will welcome the opportunity to work with the commission to evaluate the factors that cause the flooding and identify any measures to reduce flood damages.

Flooding of property around Lake Massasecum has been a problem for over fifty years During significant flood events, the water level in the lake has risen as much as ten feet above normal. In response to this repeated flooding, several investigations have been performed by both State and Federal agencies over the years. All have determined the cause of the flooding to be the limited discharge capacity of the Warner River near its confluence with the outlet from Lake Massasecum.

Attached is a map of the Warner River in the area of Lake Massasecum. The outlet stream from Lake Massasecum flows northwest for about a mile to its confluence with the Warner River. The Warner River flows through a flat, sluggish area between Bradford and Melvin Mills. For a distance of approximately three miles, the slope of the river is only approximately one foot per mile. The river flows through open meadowland in the upstream sections, but then meanders through an area where trees and thick brush border the river and grow in the channel itself. The flood problem develops during high flows on the Warner River. Because of the very flat gradient and poor channel conditions, the water surface elevation rises significantly during high flow events, and water from the Warner River backs up the outlet stream from Lake Massasecum and raises the lake level to the same height as the river.

The U.S. Army Corps of Engineers studied the problem following the flood of April 1987, and in its report dated September 1987 recommended the following alternatives to reduce the flooding at Lake Massasecum:

- Deepen and widen the river channel on the Warner River for over 1½ miles from Bradford to Melvin Mills, and construct a bascule gated dam on the river, just downstream of its confluence with the lake outlet, to maintain normal levels in the lake.

- Construct a dam at the "Counsel Rock Bridge" with a flap gate to prevent backwater from the Warner River. This would also require a pump station to remove lake water when the river level is high and the flap gate closed.

- Construct a 5-foot-diameter tunnel 1½ miles from the lake outlet to the Warner River.

- Raise or relocate flood prone structures.

The Corps provided a rough estimate of well over $1.5 million for the cost of each alternative. Simply adjusting this 1987 estimate to account for inflation in construction costs since that time, these alternatives are estimated to cost well over $3 million. In addition, the environmental impacts associated with all the alternatives, with the exception of raising or relocating the flood prone structures, would be difficult to overcome; and if they could, they would add significantly to the costs.

In 1989, a bill was introduced, HB 344-FN, that would have appropriated $25,000 for a hydrologic study of the outlet of Lake Massasecum and the Warner River to identify feasible methods to reduce or eliminate flooding in the area. This bill did not pass.

If HB 1154 is enacted, we would welcome the opportunity to share the results of our investigations of this problem over the years and lend our expertise to assisting the commission in identifying feasible alternatives to reduce the damages from flooding in the area.

Thank you again for this opportunity to comment, and please call either Jim Gallagher at 271-1961 or me at 271-3503 if you have any questions or need additional information.

Very truly yours,

Thomas S. Burack
Commissioner

Attachment

cc: Representative Barbara French
Senator Harold Janeway